Early STEM in Library Programs for Young Children

Sponsored by the
Texas State Library

Presented by
Christine E. McNew
CE McNew Consulting
christinemcnew@hotmail.com

Every CHILD Ready to READ® @ your library®

Fun with Science and Math for Parents and Children

[Insert the name of your library and/or your library's logo here.]

ALSC Association for Library Service to Children

PLA Public Library Association
a division of the American Library Association

Help your child get ready to read by learning about science and math.

Learning about the world.

Let’s learn how to learn by exploring ice cubes!

1. **Question**: Does warm water affect ice?
2. **Predict:** Make a guess. Will the ice cubes in warm water melt differently than the ice cubes in cold water?
3. **Experiment:** Put some ice cubes in warm water and some ice cubes in cold water.
4. **Observe:** Watch the ice cubes closely.
5. **Conclusion:** What happens???

Start with questions.

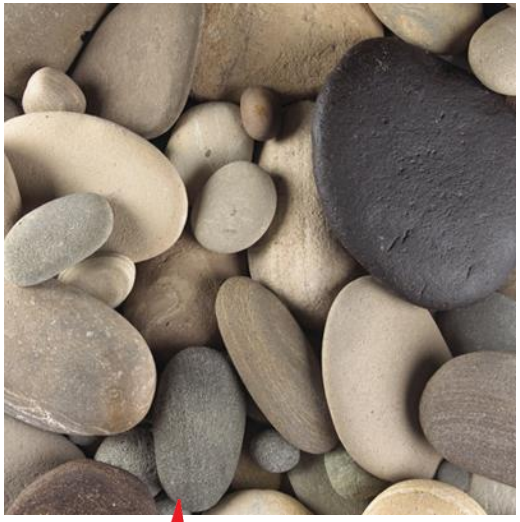
How do trees get a drink of water?

Why can I see my breath when it is cold?

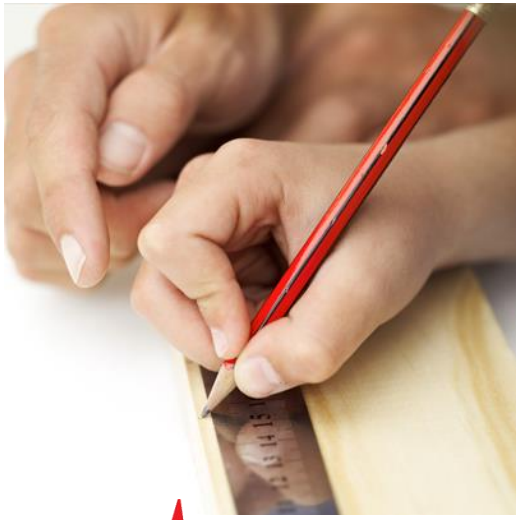
How much is one-half of something?

What is <u>your</u> question?

Explore the world with
your children every day.



Learning about the world continues with math.



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n abo
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Math concepts are easy to include in everyday conversation.

How many are there?
Which one is the largest?
Which one looks like a cone?
Can you put them in order from smallest to largest?

Every CHILD Ready to READ @your library

Home Details About Community Project History Order Now

Read.Learn.Grow.

The updated and expanded 2nd edition of Every Child Ready To Read incorporates simple practices, based on research, to help parents and other caregivers develop early literacy skills in children from birth to age five.

Learn More Order Now

Video clips from PowerPoints

Every Child Ready to Read logos

www.everychildreadytoread.org

Every Child Ready to Read® @ your library® is a program of the Association for Library Service to Children and Public Library Association, divisions of the American Library Association. Every Child Ready to Read® @ your library® is a registered trademark and is used with permission.

Todos los NIÑOS listos para LEER

Hablar | Cantar | Leer | Escribir | Jugar

Spanish Language Every Child Ready to Ready presentations are coming soon!

Join the Every Child Ready to Read community to learn more and to share your ideas, download resources from other ECRR leaders, and learn about upcoming programs.

- http://everychildreadytoread.ning.com
- http://facebook.com/everychild

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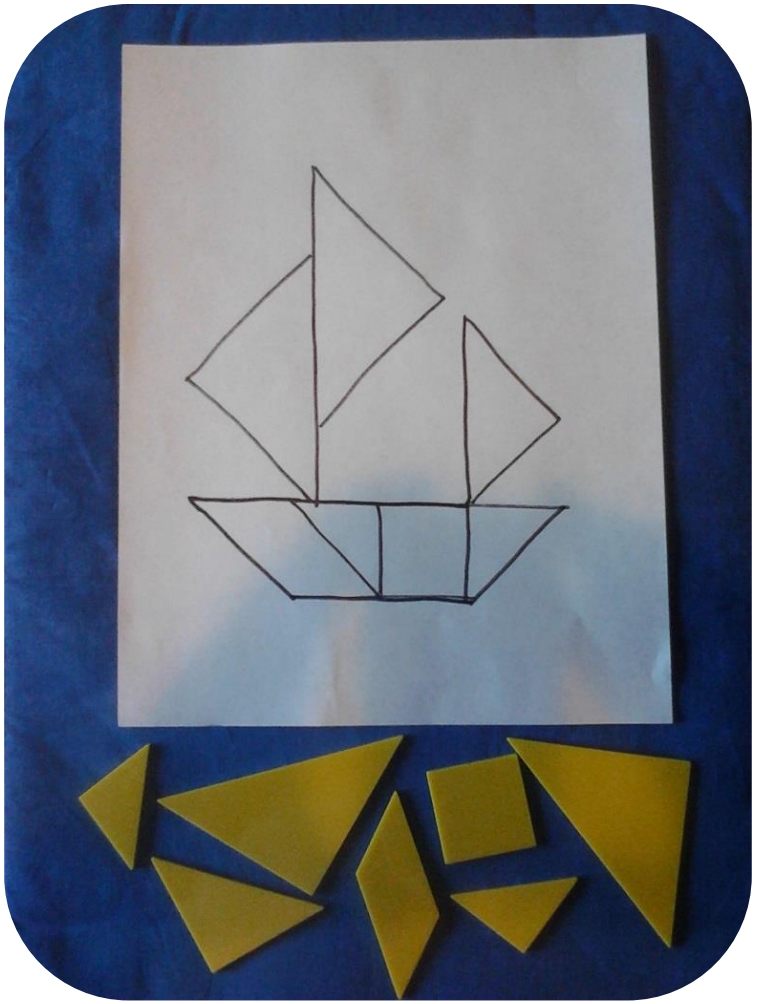
Recognizing Shapes

1 Long thin Rectangle
2 Stars
2 Small Circles
1 Large circle
1 Large triangle
1 Moon

Clown Shape

Shapes: Tangrams



Recognizing Same & Different

When children explore same and different,

- They observe and talk about physical characteristics of objects.
- They talk about uses and/or functions of different objects
- They learn to sort a collection of different objects with shared attributes (characteristics).

Recognizing Same & Different

Recognizing Same and Different

Sesame Street

One Of These Things (is Not Like The Others)
Words and Music by Joe Raposo and Jon Stone

www.metrolyrics.com/one-of-these-things-is-not-like-the-others-lyrics-sesame-street.html

Recognizing Same & Different

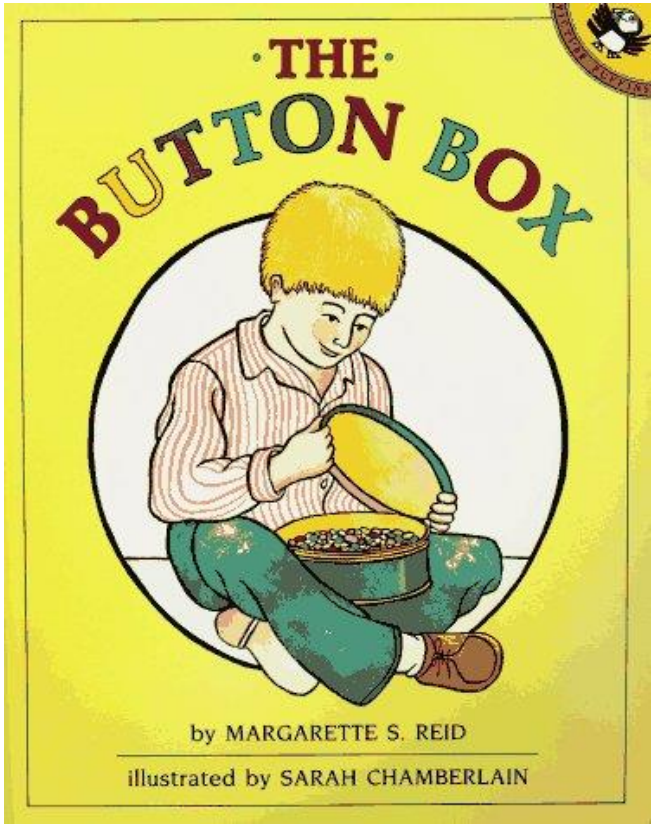
Recognizing Same & Different

Sorting

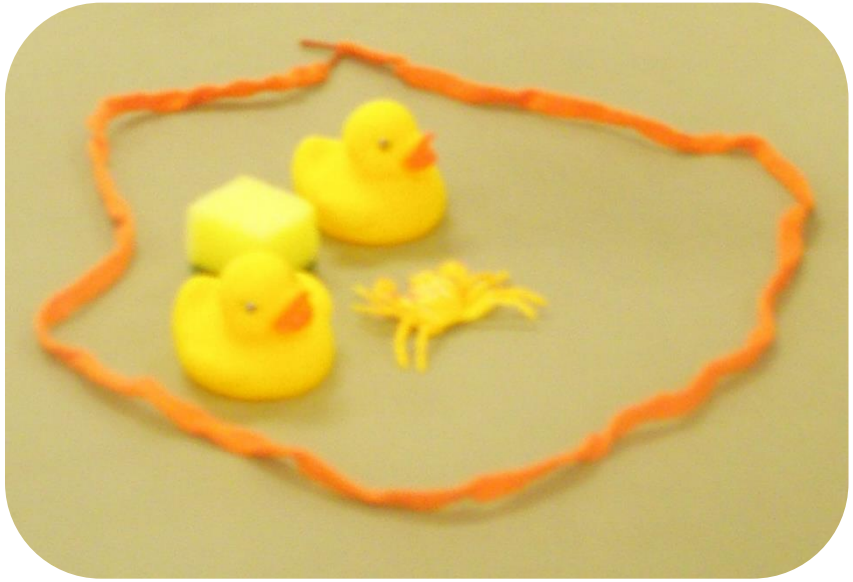
Book: Five Creatures by Emily Jenkins

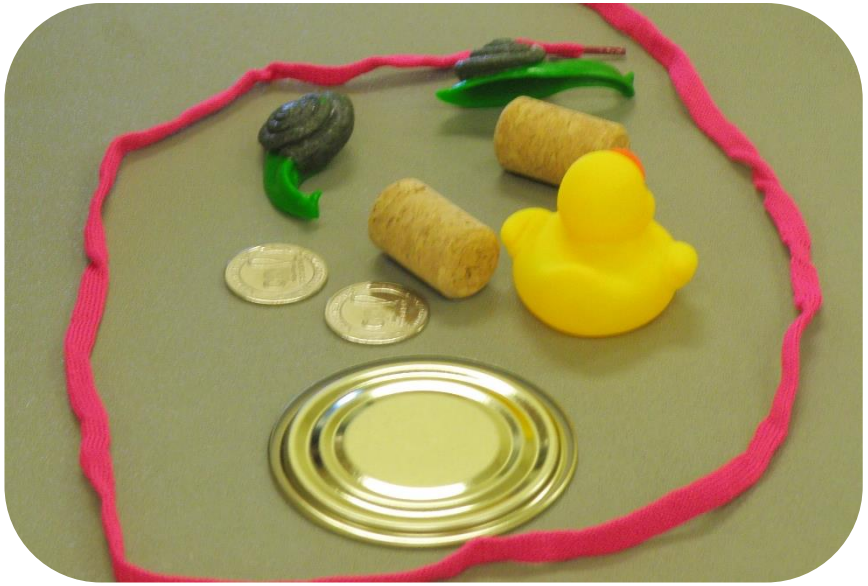
Sorting a Button Collection

Book: *The Button Box* by Margarette S. Reid

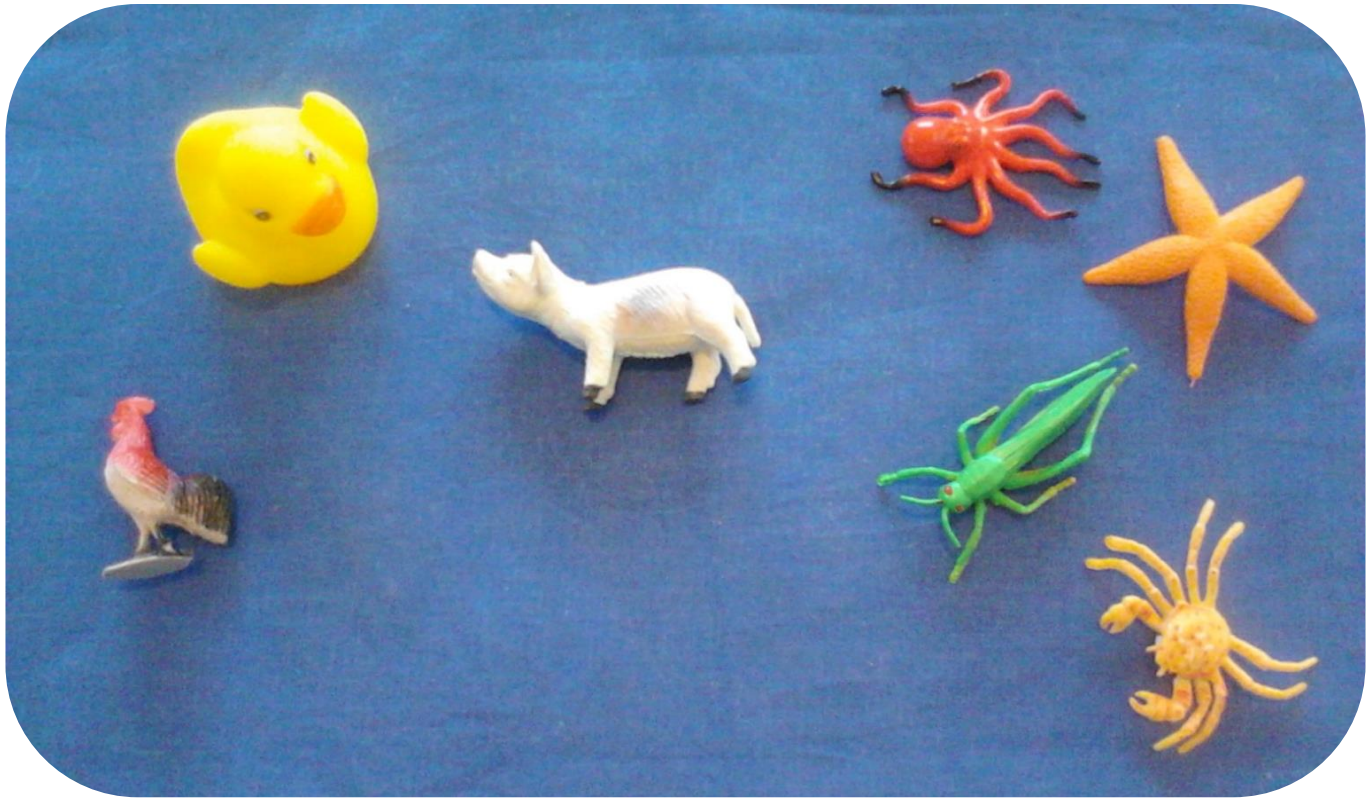


Sorting by Attributes

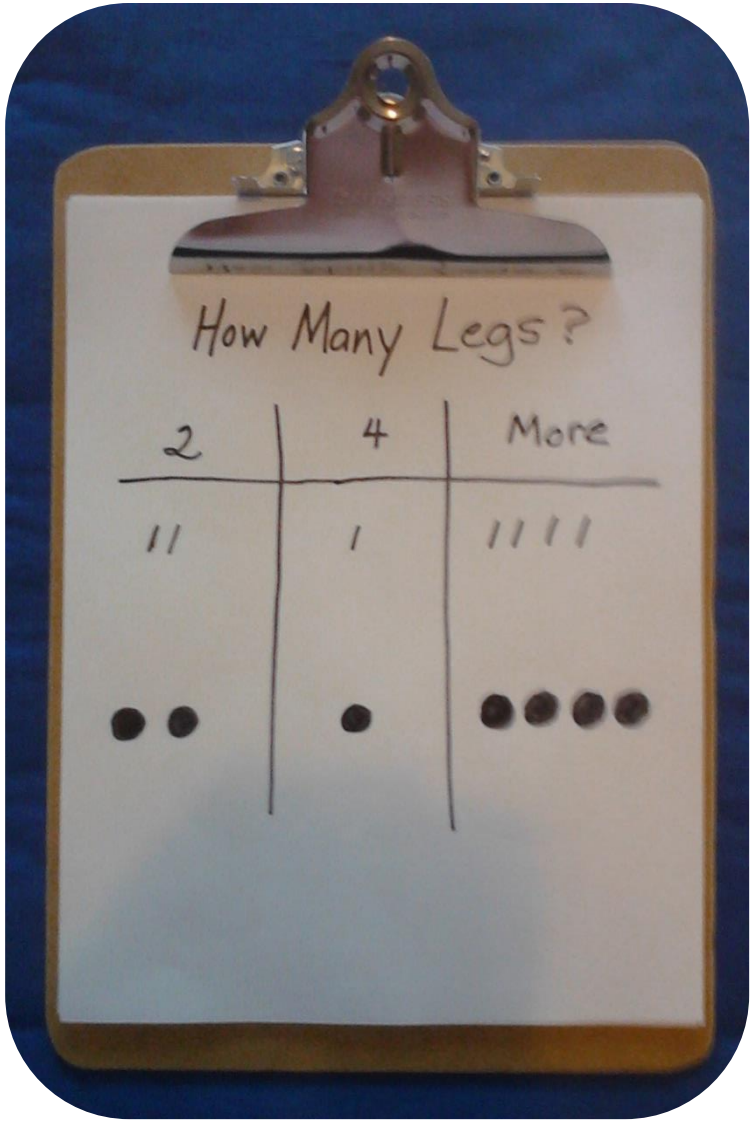




Sorting by Attribute



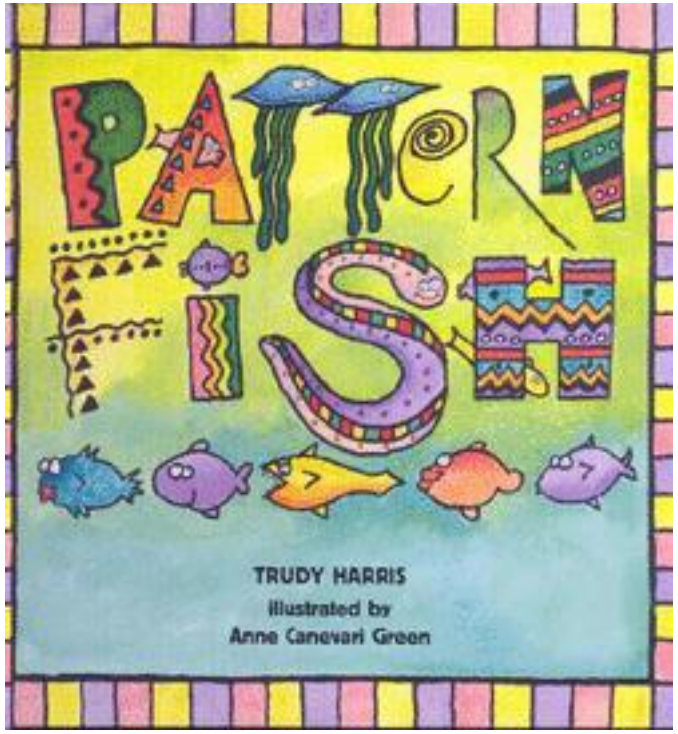
Sorting

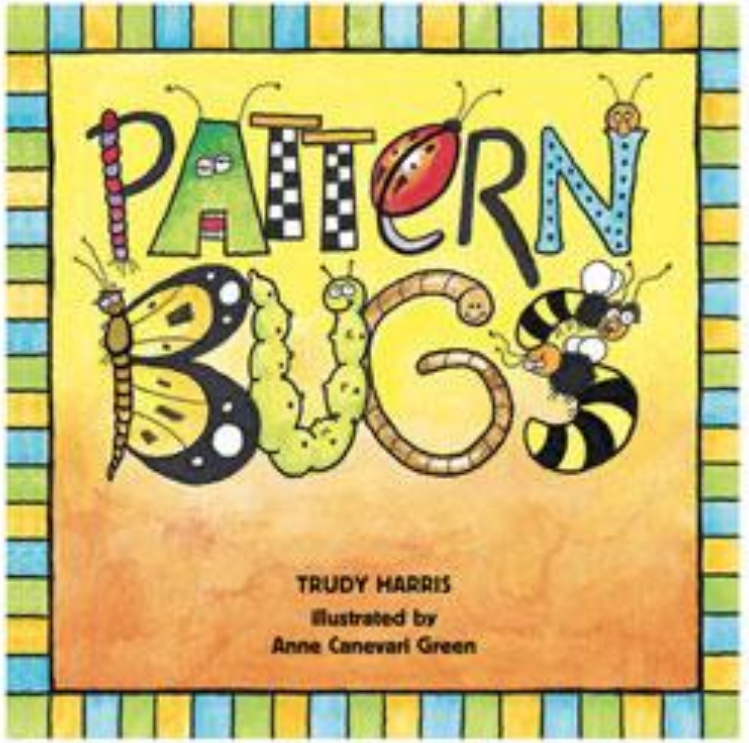


Sorting by Attributes

Repeating Patterns

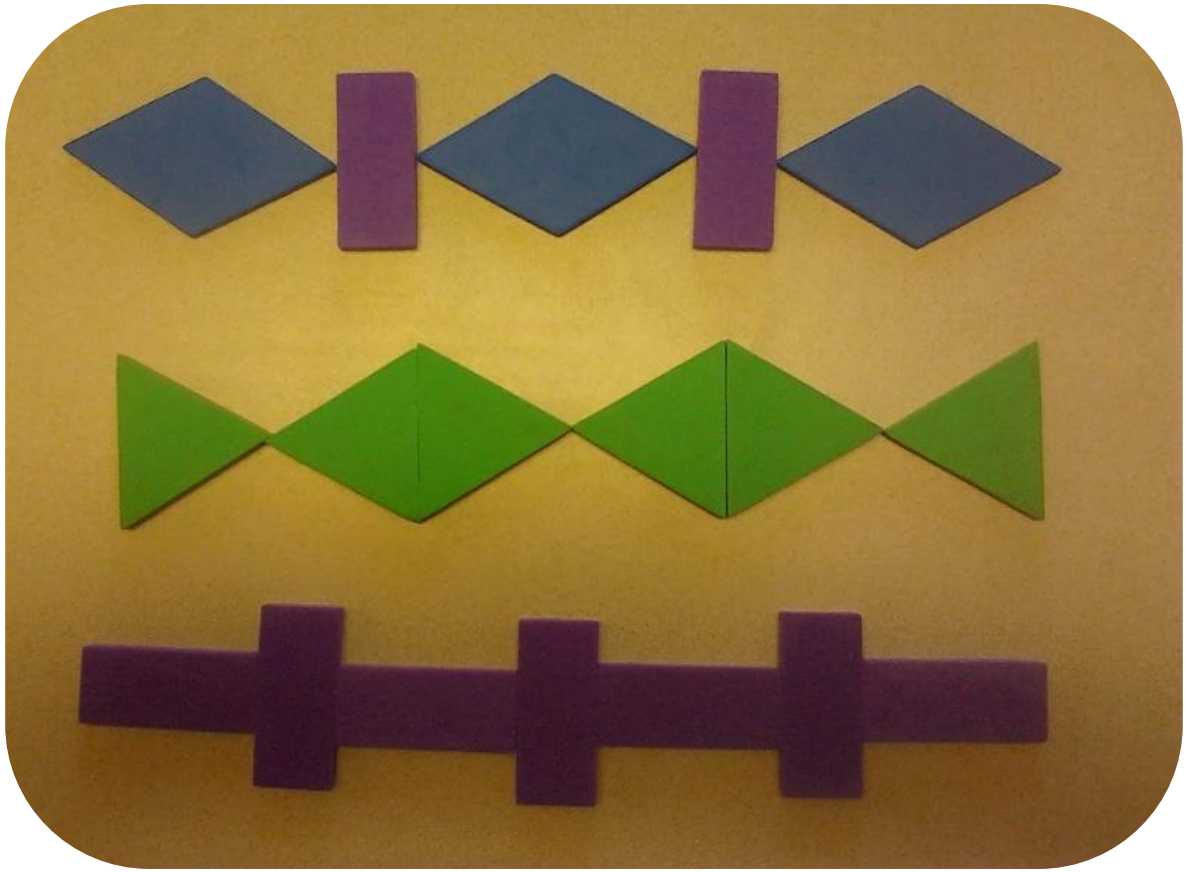
Books:
Pattern Fish and *Pattern Bugs* by Trudy Harris





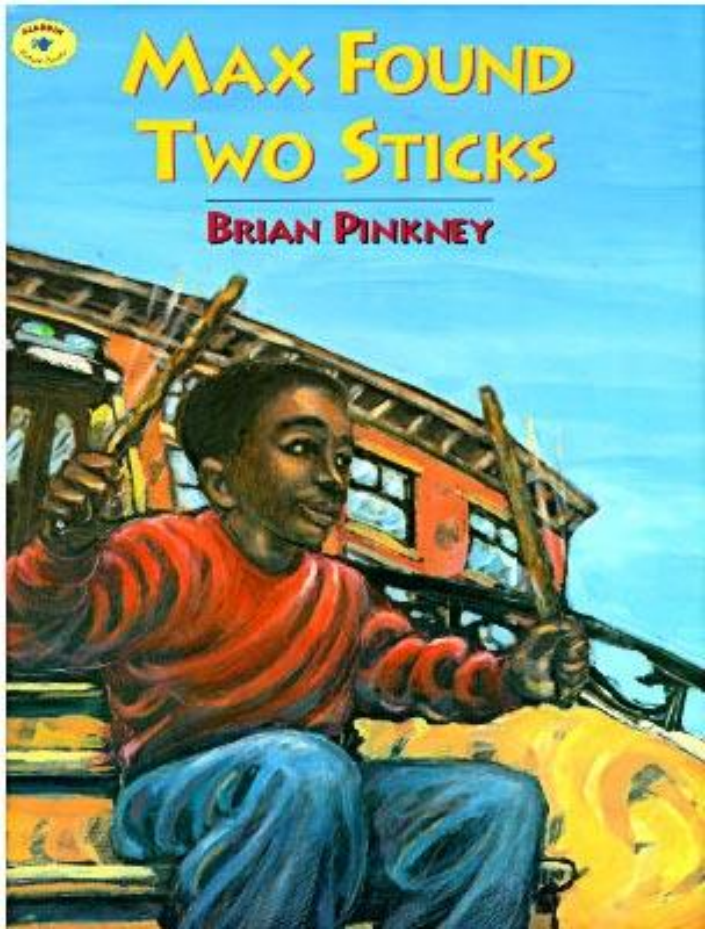
Patterns with Colors

Repeating Patterns with Foam Shapes



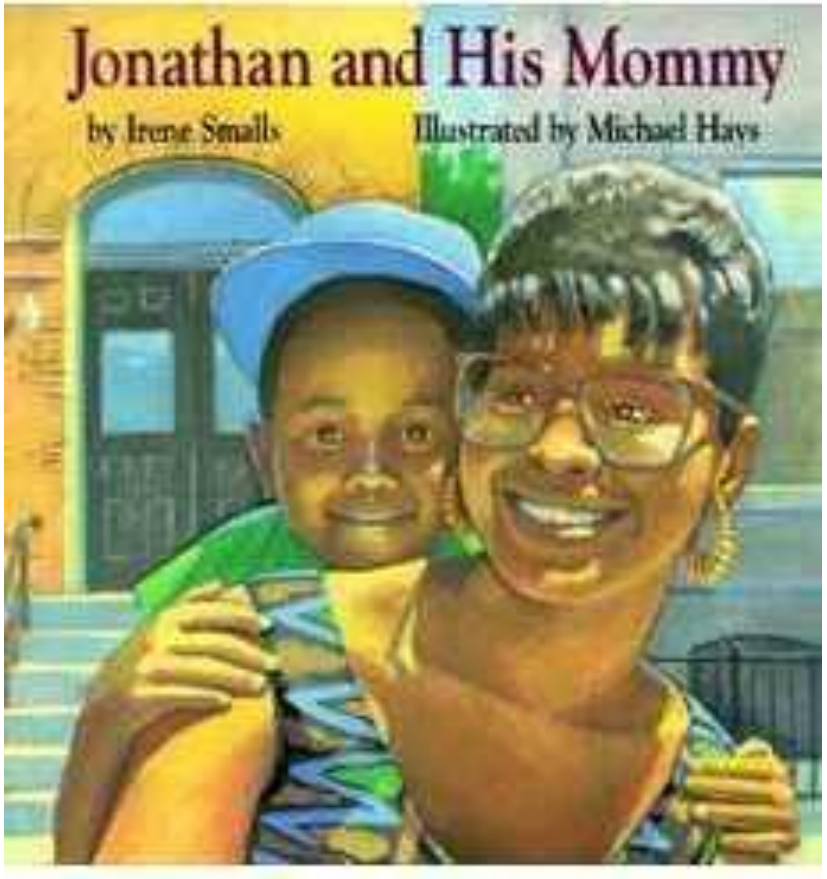
Patterns with Sounds

Book: *Max Found Two Sticks* by Brian Pinkney



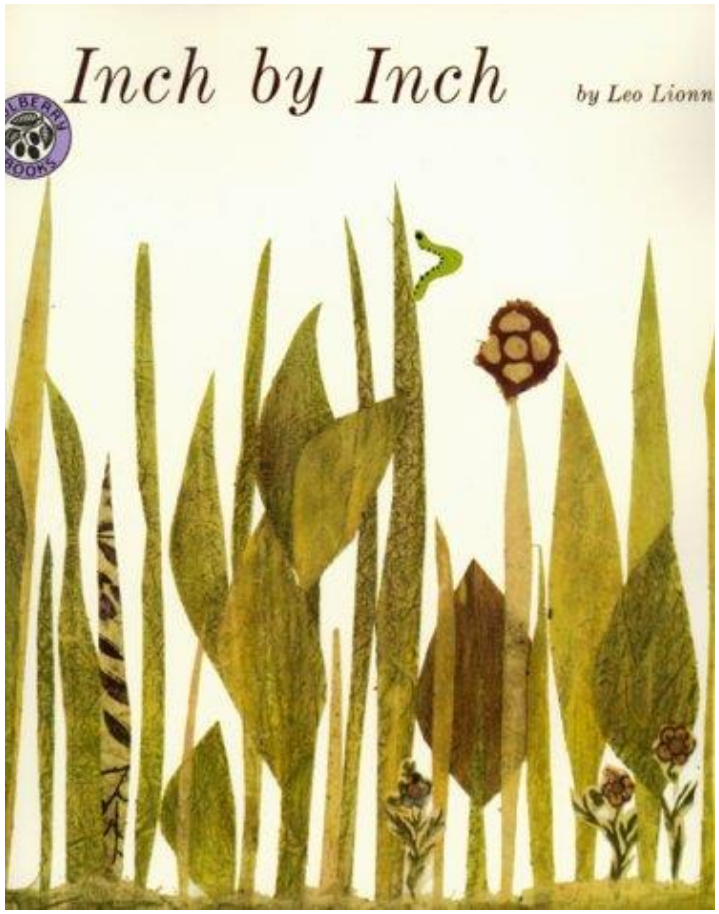
Movement Patterns

Book: *Jonathan and His Mommy* by Irene Smalls



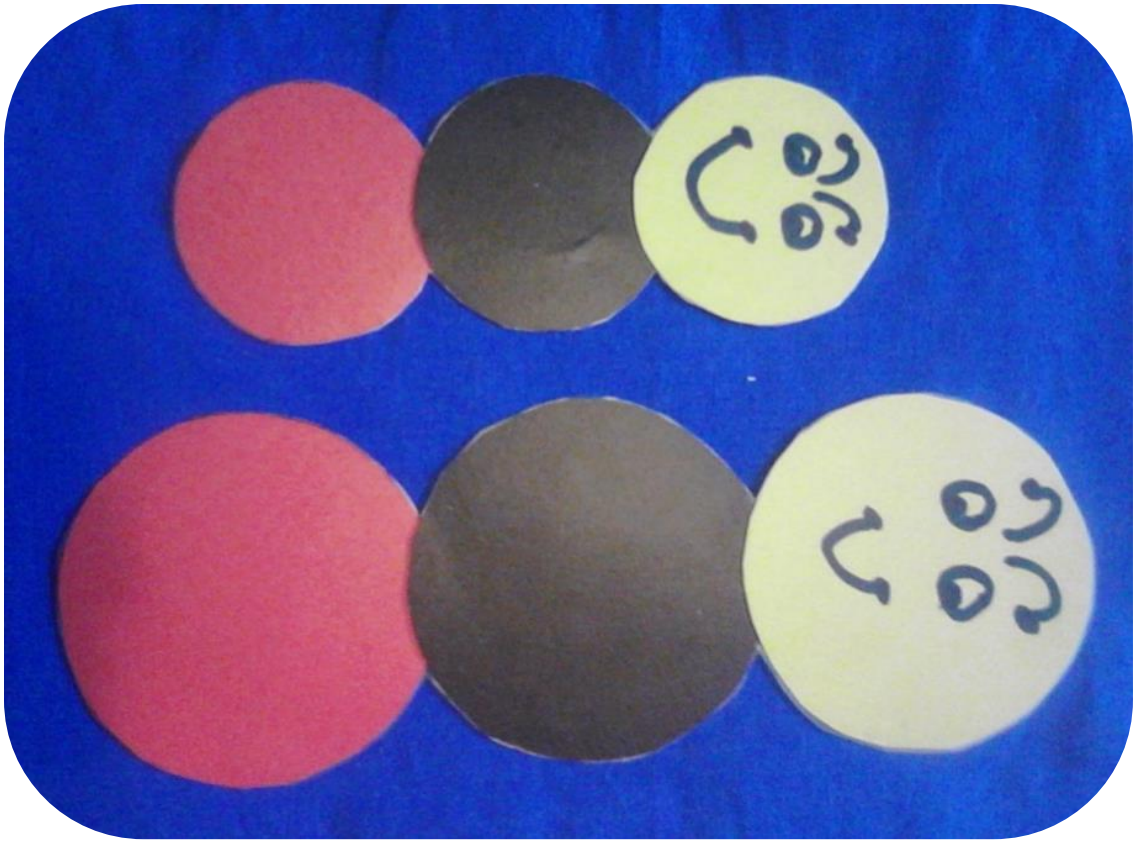
Measuring Height and Length

Book: *Inch by Inch* by Leo Lionni



Measuring Height and Length

Caterpillar Measure



Measuring Height and Length

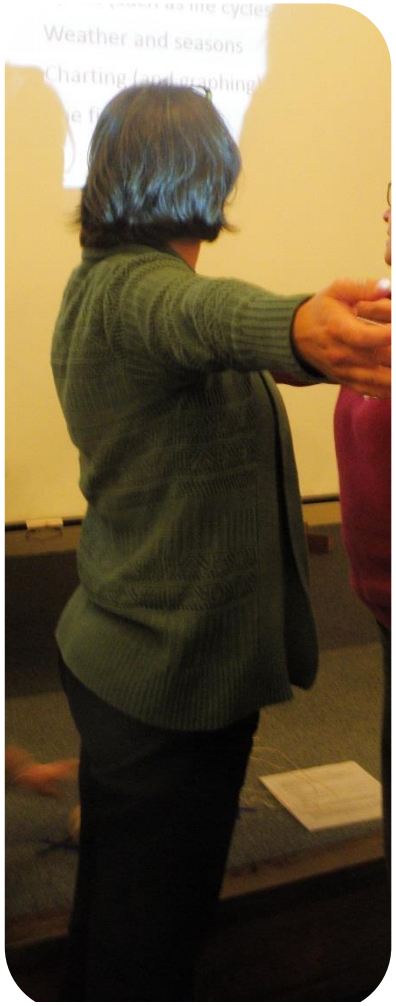
Measuring Height and Length

How Do I Measure Up?

Books:

I Like Me by Nancy Carlson
My Feet by Aliki
My Hands by Aliki

How Do I Measure Up?

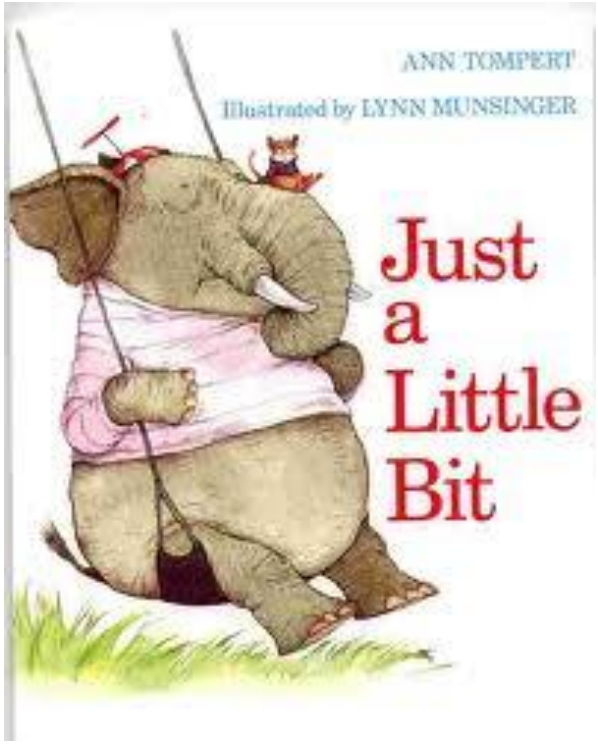


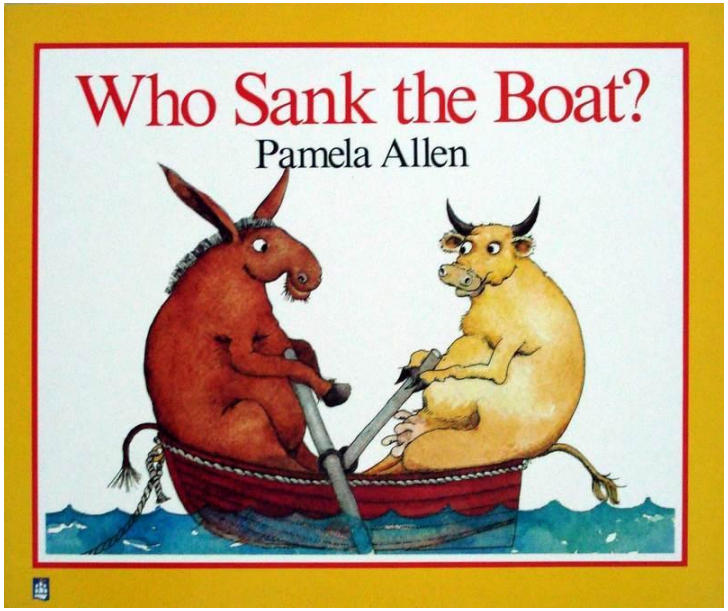
Measuring Weight
Bucket Balance

Books:

Just a Little Bit by Ann Tompert

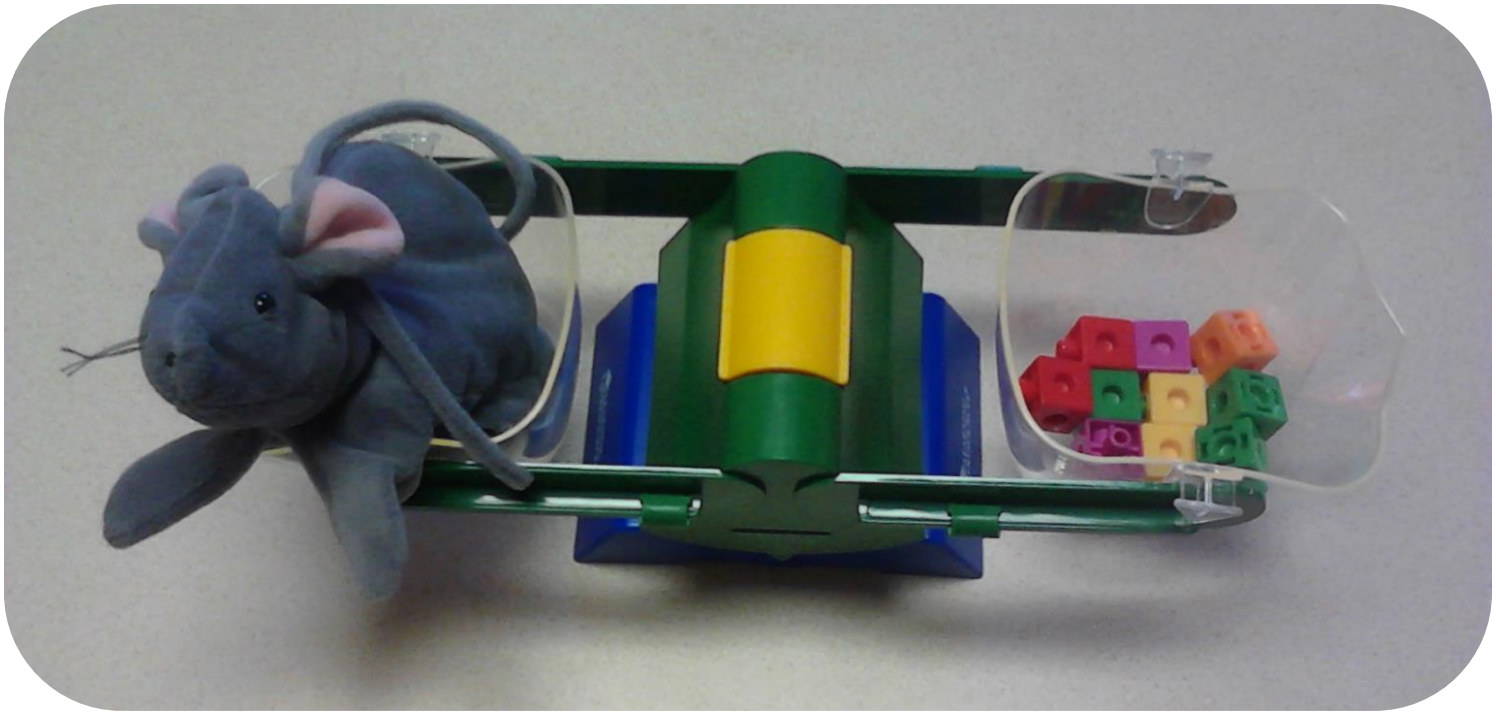
Who Sank the Boat by Pamela Allen





Measuring Weight
Bucket Balance

Measuring Weight
Bucket Balance



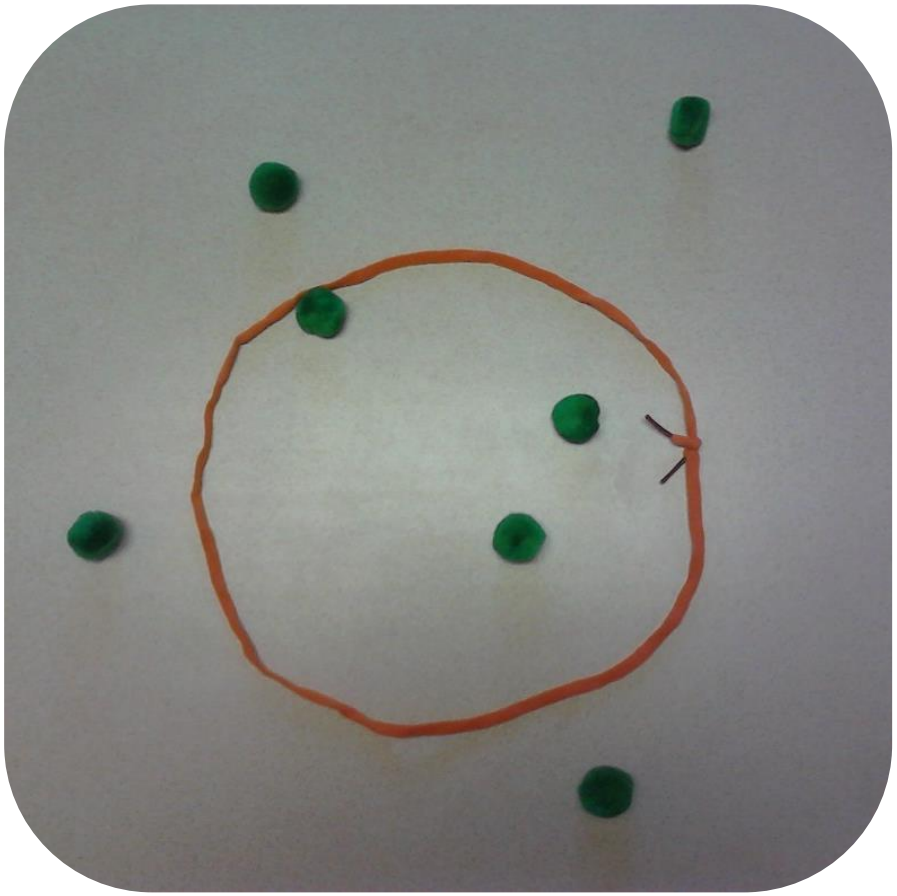
Measuring Weight
Bucket Balance

Comparing Weight

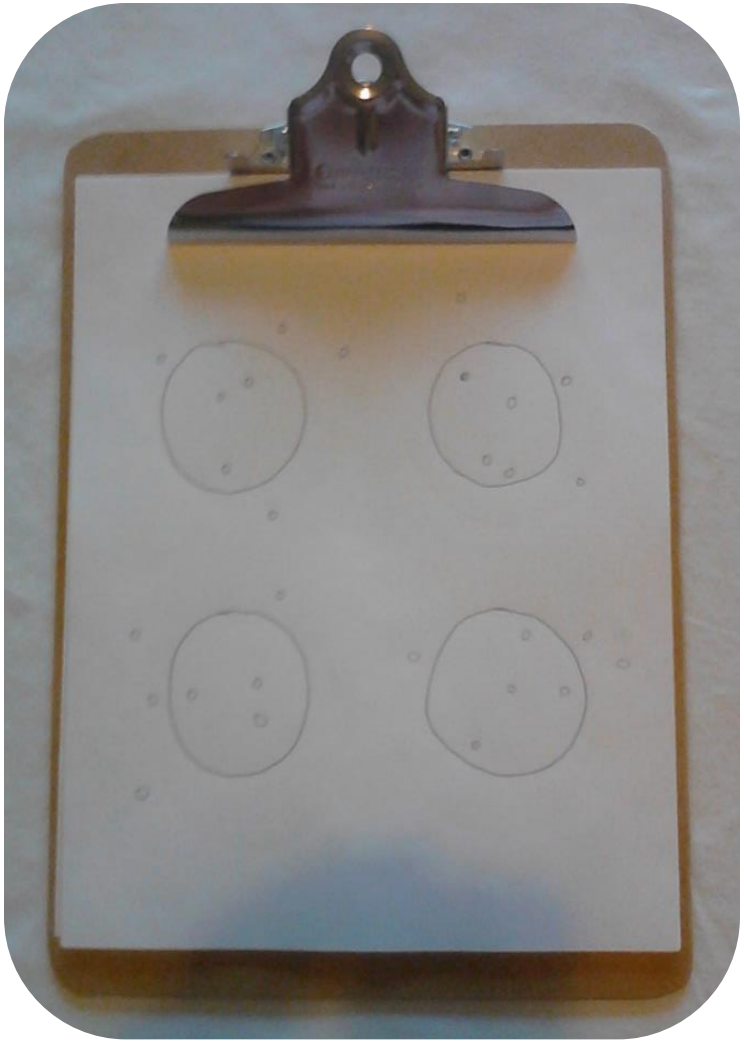
Measuring Capacity

Number Relationships

Pom Pom Toss

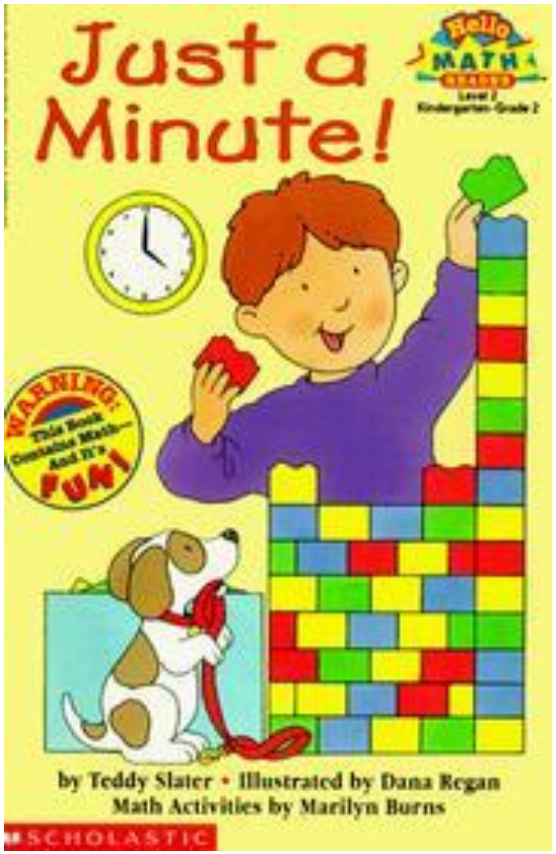


Graphing Activity
With Pom Pom Toss



Measuring Time

Book: *Just a Minute* by Teddy Slater

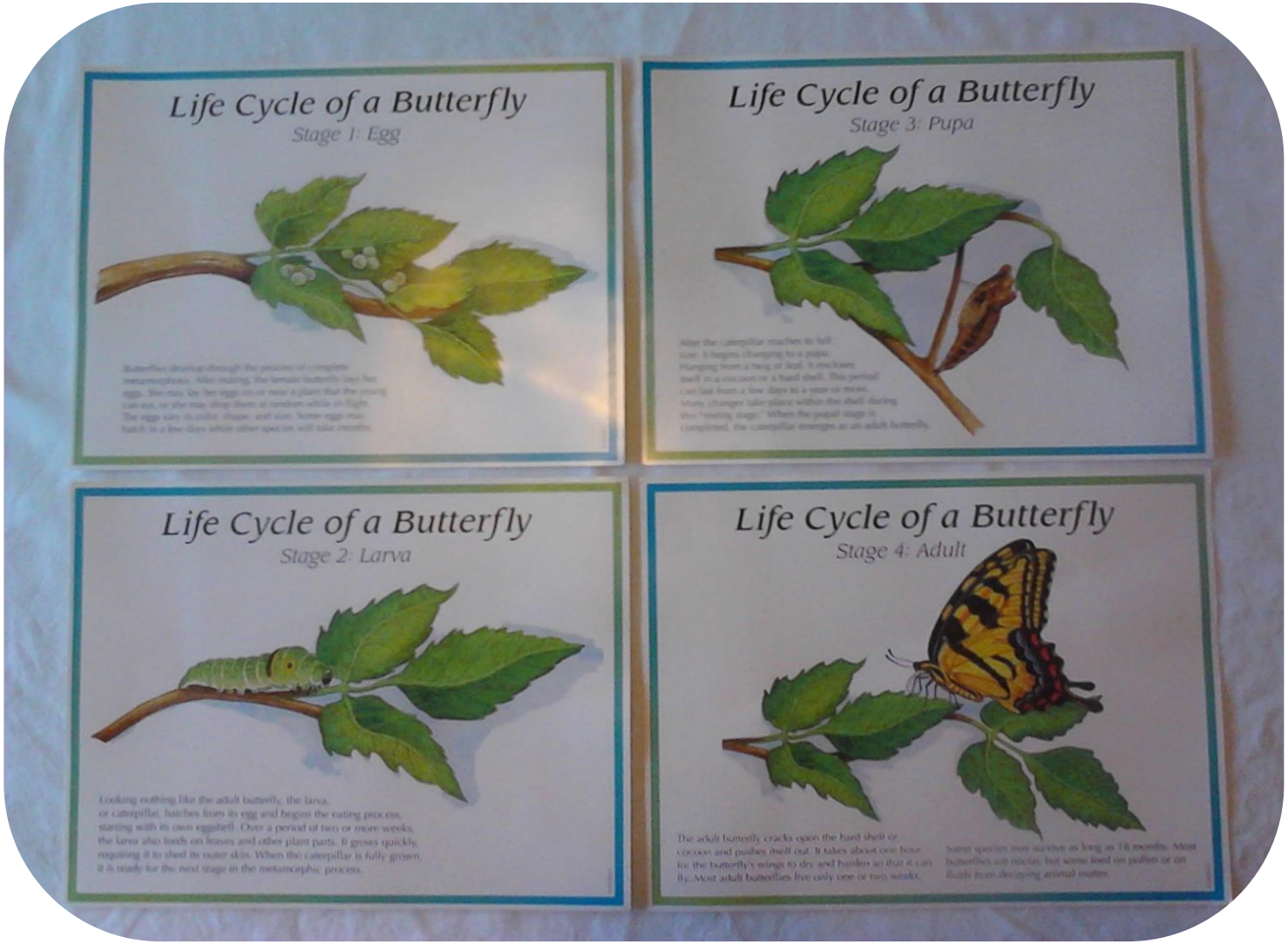


Measuring Time

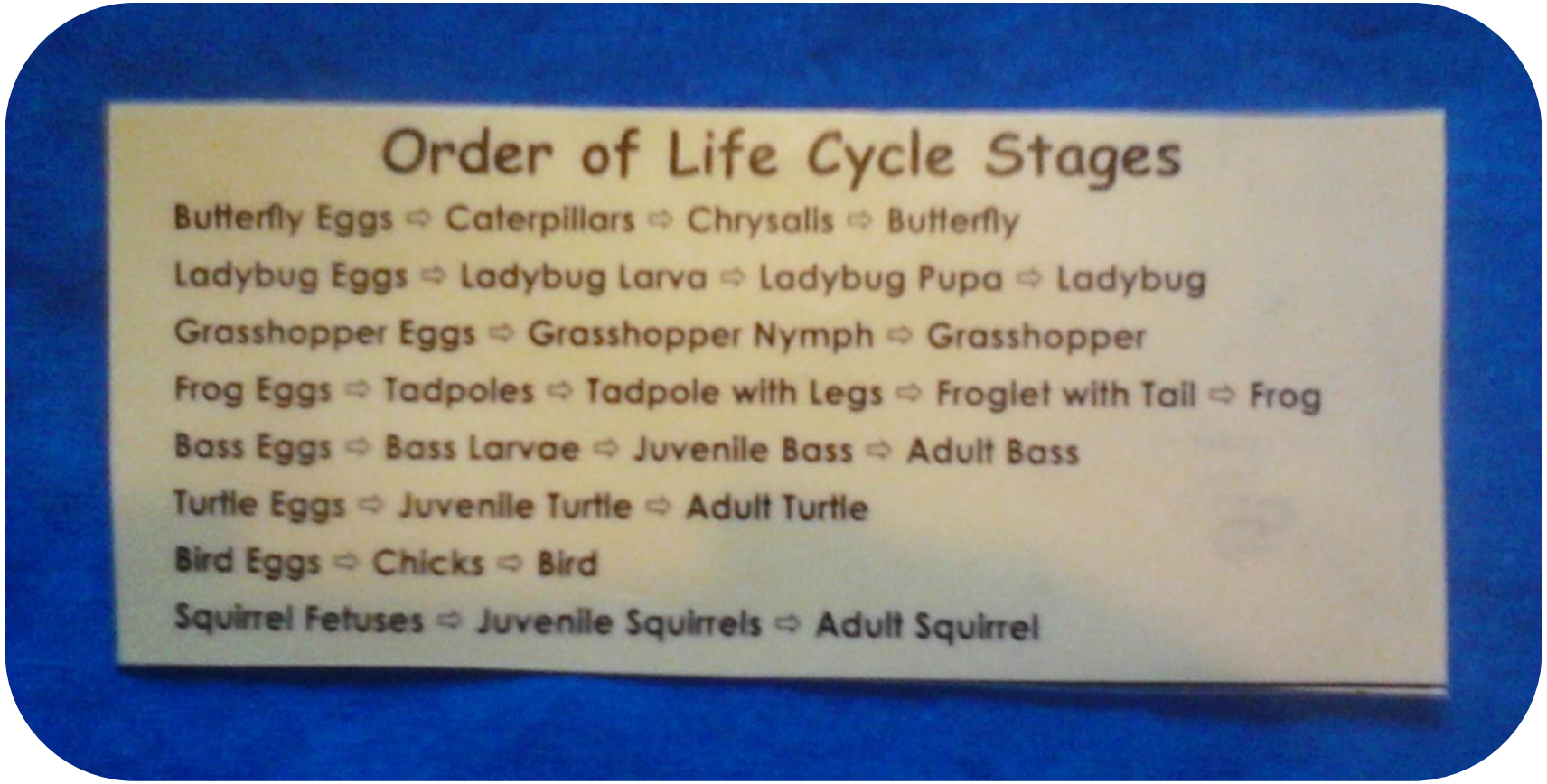
Life Cycles
Butterfly Life Cycle Wheel

Book: The Very Hungry Caterpillar by Eric Carle

Life Cycles


Life Cycle of a Butterfly
Stage 1: Egg
Life Cycle of a Butterfly
Stage 3: Pupa
Life Cycle of a Butterfly
Stage 2: Larva
Looking nothing like the adult butterfly, the larva, or caterpillar, hatches from its egg and begins the eating process, starting with its own eggshell. Over a period of two or more weeks, the larva also feeds on leaves and other plant parts. It grows quickly, requiring it to shed its outer skin. When the caterpillar is fully grown, it is ready for the next stage in the metamorphic process.
Life Cycle of a Butterfly
Stage 4: Adult
The adult butterfly cracks open the hard shell or cocoon and pushes itself out. It takes about one hour for the butterfly's wings to dry and harden so that it can fly. Most adult butterflies live only one or two weeks.

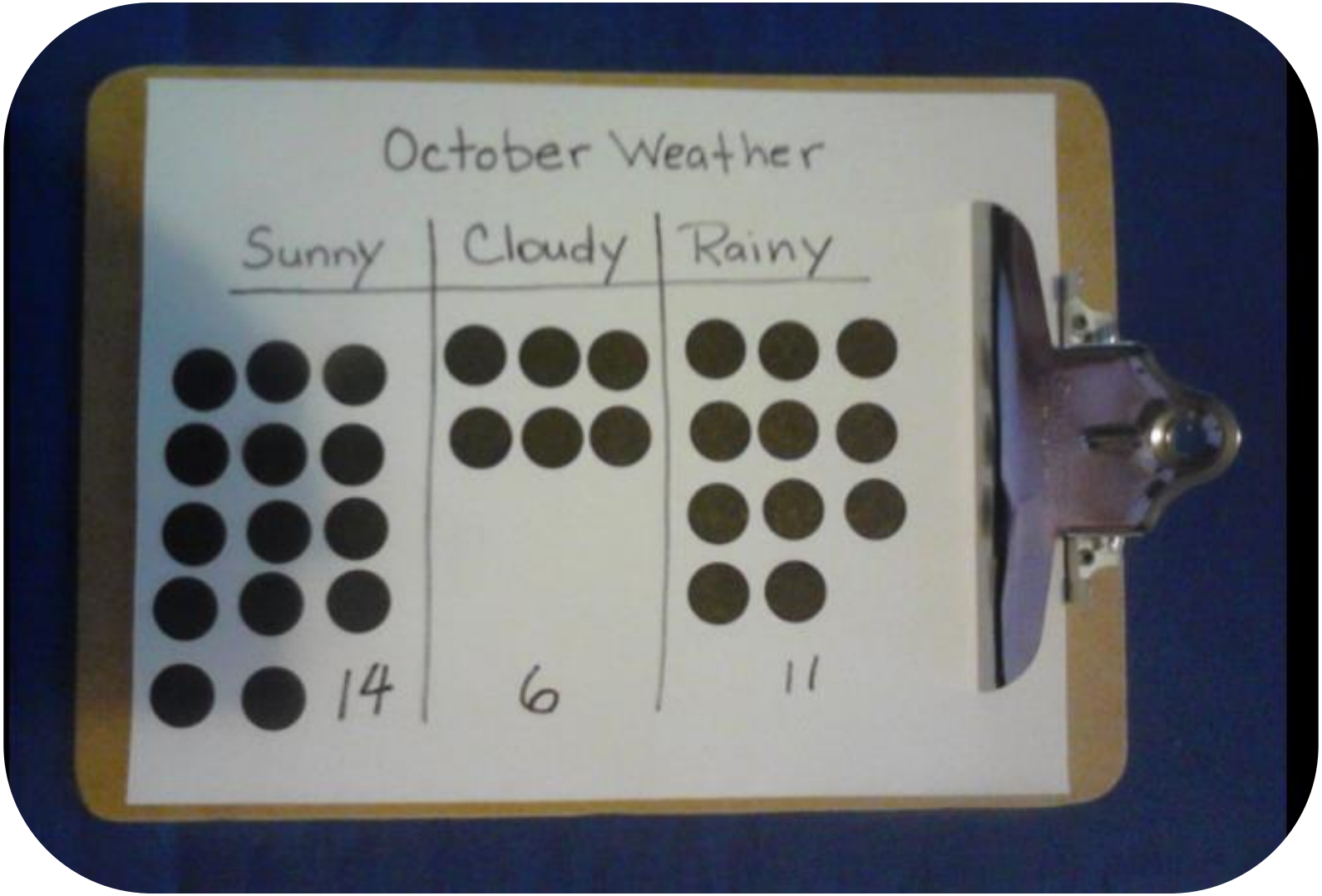
Life Cycles


Order of Life Cycle Stages
Butterfly Eggs ⇨ Caterpillars ⇨ Chrysalis ⇨ Butterfly
Ladybug Eggs ⇨ Ladybug Larva ⇨ Ladybug Pupa ⇨ Ladybug
Grasshopper Eggs ⇨ Grasshopper Nymph ⇨ Grasshopper
Frog Eggs ⇨ Tadpoles ⇨ Tadpole with Legs ⇨ Froglet with Tail ⇨ Frog
Bass Eggs ⇨ Bass Larvae ⇨ Juvenile Bass ⇨ Adult Bass
Turtle Eggs ⇨ Juvenile Turtle ⇨ Adult Turtle
Bird Eggs ⇨ Chicks ⇨ Bird
Squirrel Fetuses ⇨ Juvenile Squirrels ⇨ Adult Squirrel

Exploring Weather

Books:

W is for Wind: A Weather Alphabet by Pat Michaels
In the Rain with Baby Duck by Amy Hest
The Snowy Day by Ezra Jack Keats


October Weather
Sunny
Cloudy
Rainy
14
6
11

OCTOBER 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

September 2013

S	M	T	W	Th	F	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

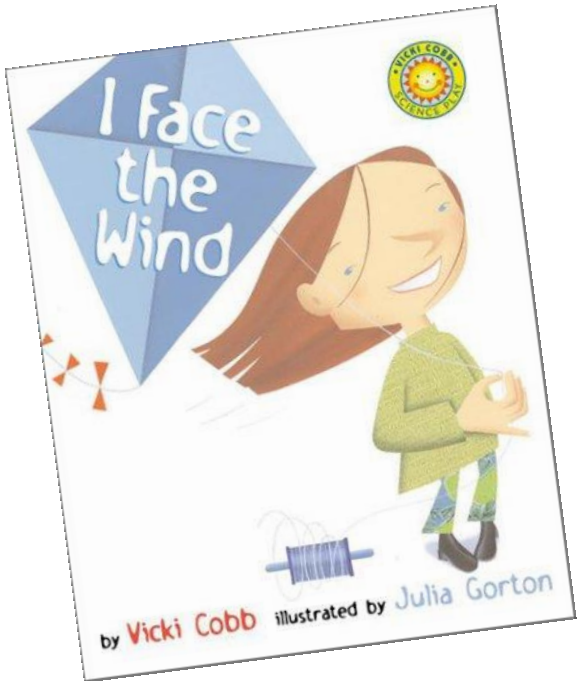
November 2013

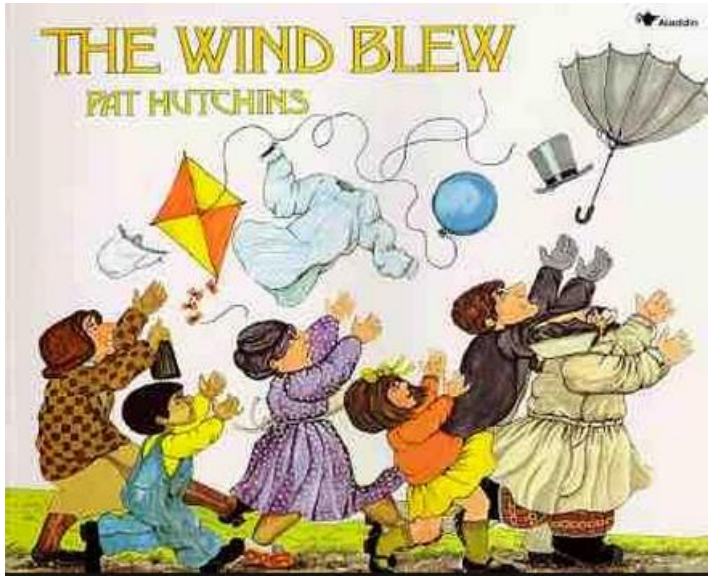
S	M	T	W	Th	F	Sa
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Weather: Wind

Books:

The Wind Blew by Pat Hutchins
I Face the Wind by Vicki Cobb
Wind by Marion Dane Bauer





Weather: Wind

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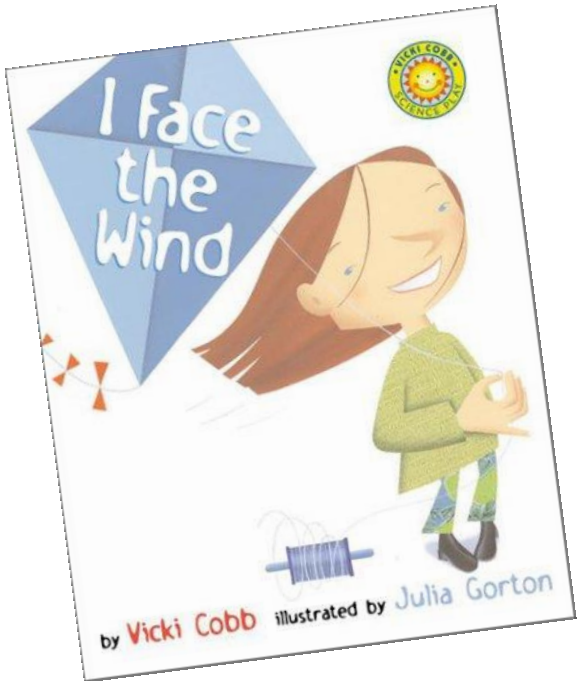
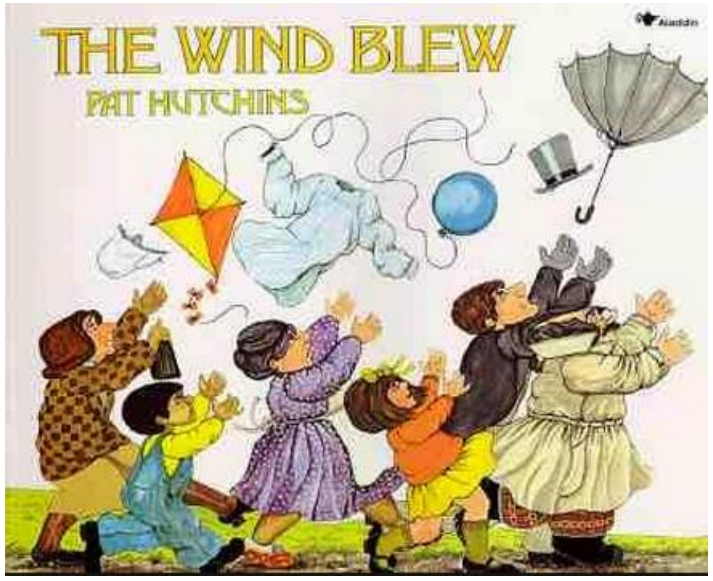




The Show Me Librarian

http://showmelibrarian.blogspot.com/p/all-things-steam.html

All Things STEAM

Welcome to All Things STEAM, a resource for offering library programming in science, technology, engineering, arts, and mathematics. When it comes to developing my STEAM programming, I have a number of go-to resources that I use for inspiration and concept knowledge support. I've gathered links to those resources, my program how-tos, and other STEAM resources for your convenience. I'll be updating as I have more links to share, so bookmark this page and get programming! And if you'd ever like to bounce ideas around, please comment here or start a conversation on Twitter (I'm @amyeileenk). I'm always up for a STEAM discussion.

My Library's STEAM Programs

Preschool Science Series:

- Strength and Materials with the Three Little Pigs
- Weather with *Bringing the Rain to Kapiti Plain*

Want more info?

Please visit my Wordpress site for full details on my library presentations and service.

Association of Library Services to Children (ALSC) Blog

Posts on STEM Programs for Preschoolders - by Amy Koester

Gravity Science: A STEM Program for Preschoolers
www.alsc.ala.org/blog/2013/08/gravity-science-a-stem-program-for-preschoolers/

Make a Splash: Water Science for Preschoolers
www.alsc.ala.org/blog/2013/06/make-a-splash-water-science-for-preschoolers/

Color Science: A STEM Program for Preschoolers
www.alsc.ala.org/blog/2013/02/color-science-a-stem-program-for-preschoolers/

Body Science for Preschoolers: Using our brains to learn about our bodies
www.alsc.ala.org/blog/2013/04/body-science-for-preschoolers-using-our-brains-to-learn-about-our-bodies/

Oh, the Weather Outside is Delightful–for Preschool Science
www.alsc.ala.org/blog/2012/12/oh-the-weather-outside-is-delightful-for-preschool-science/

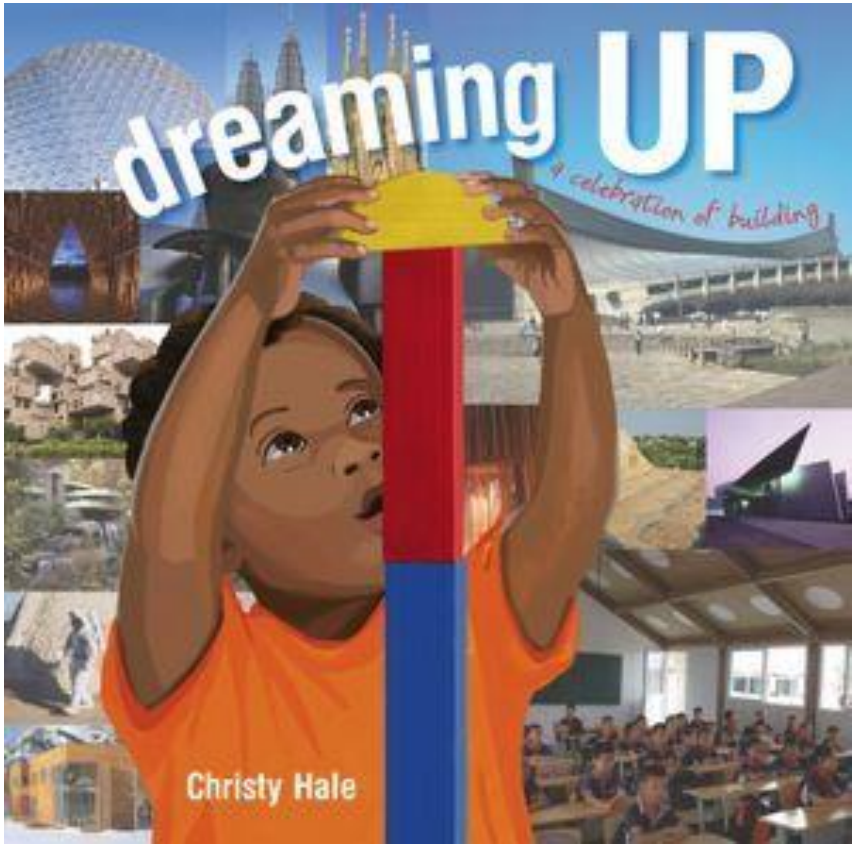
The Three Little Pigs & the Preschool Science
www.alsc.ala.org/blog/2012/10/the-three-little-pigs-the-preschool-science/

“Full STEAM Ahead: Injecting Art and Creativity into STEM” by Amy Koester.

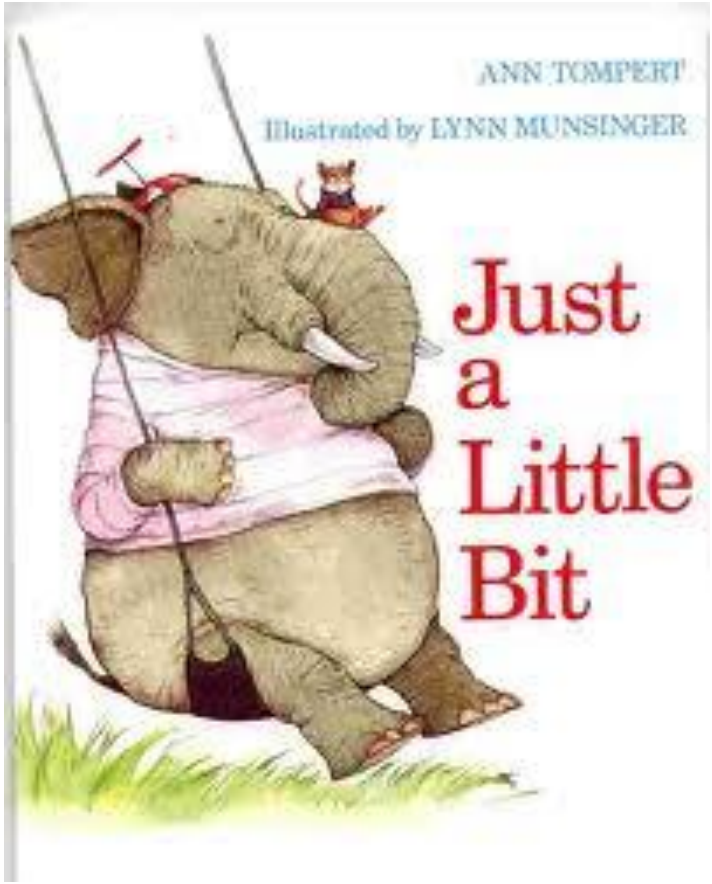
School Library Journal, October 1, 2013.

www.slj.com/2013/10/programs/full-steam-ahead-injecting-art-and-creativity-into-stem/

Toddler Program
WHAT SHAPE IS IT?



Preschool Storytime
HOW DO WE MEASURE UP?




What's the BIG Idea?™
Making Math and Science Come Alive for
Children and Families in Your Library
Librarian Manual

What's the BIG Idea?

What's the BIG Idea? focuses on the four "BIG Ideas" of math and science that early childhood education experts say that children need to encounter and begin to have experience with before they begin school.

- Patterns and Relationships
- Change Over Time
- Geometry and Spatial Sense
- Numbers and Operation

What's the BIG Idea?

Librarians can help young children develop these essential science inquiry skills through simple and fun science activities.

- Classifying
- Communicating
- Comparing and Contrasting
- Gathering and Organizing Data
- Creating Models
- Measuring
- Observing
- Predicting

There are 14 kits in the What's the Big Idea™? series:

- Building
- Collecting & Sorting
- Construction
- Counting 1-2-3
- Exploring Growth
- Exploring Shapes
- Exploring Weather
- Making Sets
- Maps and Directions
- Number Patterns
- Part-Part-Whole
- Patterms & Relationships Everywhere
- Recognizing Same & Different
- Shadows

See larger image

Building

What do young children learn when they **build**?

- They learn about **problem solving and experimentation**.
- They learn how to **communicate** our ideas when we talk about tools, shapes and design.
- They learn about **geometry** by seeing how shapes fit together.

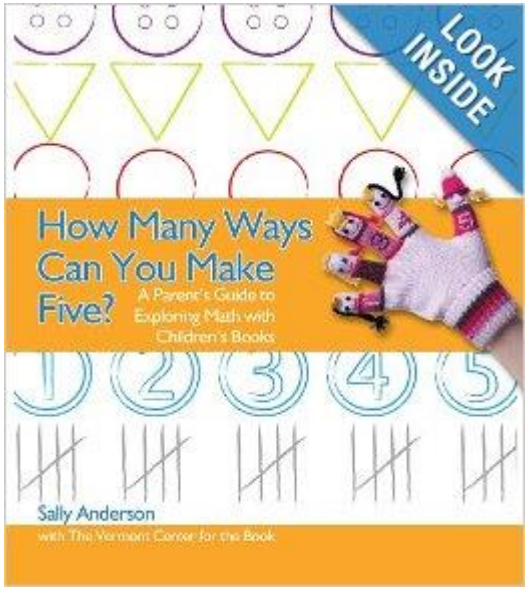
The goals of this What's the BIG Idea? kit:

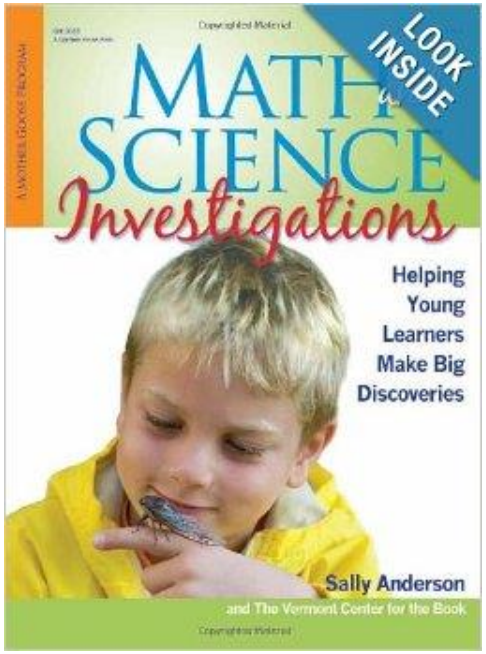
- To build structures with a variety of materials, to observe how different building materials have different strengths and limitations.
- To decide what function a building will have and work to design and build a structure to meet that need.

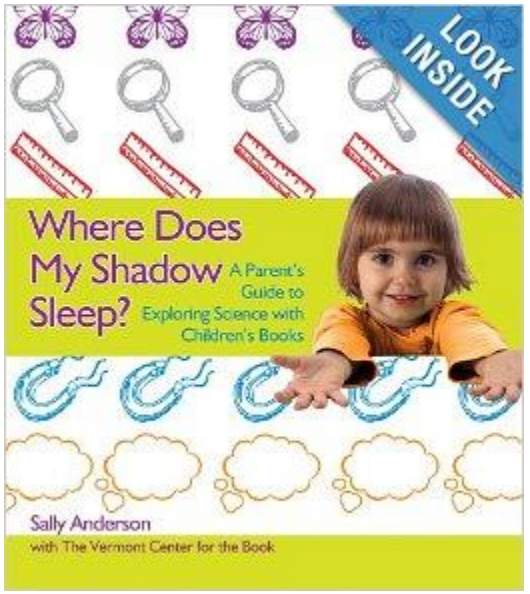
$36.99 add to cart

Now accepting PayPal

Books by Sally Anderson, Director of the Vermont Center for the Book







Developed through a partnership between The Children's Museum of Houston and the Houston Public Library with a grant from the Institute of Museum and Library Services.

www.cmhouston.org/losninos/

Para los niños

Para los niños

Family Communication: Caterpillar Measure

Growing Up WILD™

www.growingupwild.org

About the Guide

Exploring Nature with Young Children

Growing Up WILD

- About the Guide
- Guide Resources
- How Growing Up WILD Meets Educators' Needs
- Early Childhood Education Links & Reports
- Get Training
- Ordering Information

- Training Partner Login

About Growing Up WILD

Growing Up WILD is an early childhood education program that builds on children's sense of wonder about nature and invites them to explore wildlife and the world around them. Through a wide range of activities and experiences, *Growing Up WILD* provides an early foundation for developing positive impressions about the natural world and lifelong social and academic skills.

The activity guide, *Growing Up WILD: Exploring Nature with Young Children*:

- Is written especially for early childhood educators of children ages 3-7.
- Features 27 field-tested, hands-on, nature based activities in a full-color 11"x17" activity guide.
- Includes crafts, art projects, music, conservation activities, reading and math connections and much more.
- Involves social, emotional, physical, language, and cognitive

Falling Flannelboards

& Other Things I Didn't Learn in Grad School

TODDLER TIME THEMES | PRE-K STORYTIME THEMES | ABOUT | HOME

Category Archives: STEM

INTRODUCING SIMPLY STEM!

JUNE 10, 2013

INCORPORATING STEM INTO STORYTIME PT. 1

MAY 28, 2013

FOLLOW BLOG VIA EMAIL

INCORPORATING STEM INTO STORYTIME PT. 2

MAY 29, 2013

http://fallingflannelboards.wordpress.com/category/stem/

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  - Print Resources
  - School Age Programs
  - Welcome to Simply S.T.E.M

Welcome to Simply S.T.E.M.

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Simple Ideas for S.T.E.M. Programming in Libraries

Welcome to Simply S.T.E.M. There is a growing movement to include more S.T.E.M. content in library programming. But ideas that work in a classroom don't always work in a library. A librarian could spend hours searching websites and Pinterest for activities and still have to pull it all together in a program plan. This wiki is a place where librarians can share and find **complete plans** as well as more general ideas. Please add your ideas and favorite resources! Also, be sure to let us know what works for you if you use ideas you find here.

What is S.T.E.M.?

S.T.E.M. stands for Science, Technology, Engineering and Mathematics. But S.T.E.M. programming is more than just helping kids discover new facts about the world around them. It is about promoting a deeper understanding of concepts and scientific practices.

Why S.T.E.M. is important:

The National Math and Science Initiative provides a great summary in their publication, Why STEM Education Matters. Some of the highlights are:

- That's where the jobs are, and they are higher paying jobs.
- The U.S. is failing to produce enough STEM workers.

http://simplystem.wikispaces.com/Welcome+to+Simply+S.T.E.M

SimplySTEM

Preschool Programs

S.T.E.M. for Preschoolers

Many of the activities we already use in Storytime and Preschool Programs include S.T.E.M. concepts. Whether it's counting rhymes or activities about farm animals, you're probably already off to a good start. Here are some ideas of programs you can adapt to your library. Some of these ideas were created for an online class and may not have been tested on actual preschoolers. Your mileage may vary.

General Programs

- Bedtime Math by Linda Garfinkel
- Body Science by Amy Koester
- Boxes (Shapes) by Nicole Wilson
- Color Science by Amy Koester
- Discovering Dinosaurs by Erin Warzala
- Earth Day Program by Angela Critics
- Fun in the Garden by Mandy Martin
- Let's Travel by Judy Nelson
- Library Beans by Regan Vitti
- Math Shapes by Sue Zeigler
    - Shapes Puzzles
    - Shapes Search
- Octopus's Garden by Kary Henry - for kindergarteners. Adapted from 2010 Summer Reading Program Manual. "Make a

Questions?

Thank You!